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Slope Worksheet

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Part 1: Building a Foundation

What is the formula for calculating the slope of a line?

Hint: Think about the change in y over the change in x.

○ (x2 - x1) / (y2 - y1)
○ (y2 - y1) / (x2 - x1)
○ (x1 + x2) / (y1 + y2)
○ (y1 + y2) / (x1 + x2)

Which of the following are types of slopes?

Hint: Consider the different ways a line can rise or fall.

☐ Positive
☐ Negative
☐ Zero
☐ Undefined

Explain what a positive slope indicates about the direction of a line on a graph.

Hint: Think about how the line moves as you go from left to right.

List the components needed to calculate the slope of a line.

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Hint: Consider the coordinates of two points on the line.

1. What are the coordinates of the first point?

[   ]

2. What are the coordinates of the second point?

[   ]

What does a zero slope indicate about a line?

Hint: Think about the direction the line is going.

○ The line is vertical.
○ The line is horizontal.
○ The line is diagonal.
○ The line is curved.

Part 2: comprehension and Application

In the slope-intercept form of a line, y = mx + b, what does ' b' represent?

Hint: Consider what the line's position is on the y-axis.

○ The slope of the line
○ The x-intercept
○ The y-intercept
○ The midpoint

Which scenarios represent a negative slope?

Hint: Think about the direction of movement in each scenario.

☐ A car going uphill
☐ A car going downhill
☐ A person walking up stairs
☐ A person walking down stairs

Describe how the steepness of a line is related to the value of its slope.

Hint: Consider how the slope value changes with different angles.

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If a line passes through the points (2, 3) and (4, 7), what is the slope of the line?

Hint: Use the slope formula with the given points.

○ 2
○ 4
○ 1
○ 3

Given the equation y = 2x + 5, which of the following points lie on the line?

Hint: Substitute the x-values into the equation to find corresponding y-values.

☐ (0, 5)
☐ (1, 7)
☐ (2, 9)
☐ (3, 11)

Using the slope formula, calculate the slope of a line that passes through the points (1, 2) and (3, 8).

Hint: Apply the slope formula with the given points.

Part 3: Analysis, Evaluation, and Creation

Which of the following lines has the steepest slope?

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Hint: Compare the absolute values of the slopes.

◯ Line A with slope 1/2
◯ Line B with slope 2
◯ Line C with slope -3
◯ Line D with slope 0

Analyze the following scenarios and determine which involve a zero slope:

Hint: Think about the direction of each scenario.

☐ A flat road
☐ A ladder leaning against a wall
☐ A table surface
☐ A ramp

Compare and contrast the characteristics of a line with an undefined slope and a line with a zero slope.

Hint: Think about how each line behaves on a graph.

Which scenario best represents a real-world application of slope in economics?

Hint: Consider how slope relates to changes in value over time.

◯ Calculating the speed of a car
◯ Analyzing the growth rate of a company
◯ Measuring the height of a building
◯ Determining the temperature change over time

Create a scenario where a positive slope is beneficial:

Hint: Think about situations where growth or increase is desirable.

☐ Increasing sales over time
☐ Decreasing pollution levels
☐ Rising stock prices

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☐ Falling unemployment rates

Design a real-world problem involving slope and provide a step-by-step solution to solve it.

Hint: Consider a scenario where slope plays a critical role.

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